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09/853,316	05/10/2001	Takeshi Hoshida	064731.0185	5873

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Terry J. Stalford, Esq.  
Baker Botts L.L.P.  
Suite 600  
2001 Ross Avenue  
Dallas, TX 75201-2980

EXAMINER

CURS, NATHAN M

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2633

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/853,316

Applicant(s)

HOSHIDA ET AL.

Examiner

Nathan Curs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 10-13, 15-17 and 19-21 is/are rejected.
- 7) ☒ Claim(s) 5, 9, 14 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 6 and 7. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: The section "Related Patent Applications" is missing applications serial numbers and the corresponding filing date (page 1, lines 2-13).

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 7, 8, 16 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 7 and 16, the phrase "a multiple of a symbol rate of the WDM signal within 0.4 to 0.6 of an integer" is confusing. Regarding claims 8 and 17, the phrase "a multiple of the symbol rate within substantially 0.5 of the integer" is also unclear.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1, 2, 6, 10, 11 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohshima (US Patent No. 5483368).

Regarding claim 1, Ohshima discloses a method for demultiplexing non-intensity modulated wavelength division multiplexed (WDM) signals, comprising: receiving a wavelength division multiplexed (WDM) signal having a plurality of non-intensity modulated optical information signals (col. 4, lines 37-43 and lines 57-67; fig. 11 and col. 10, lines 1-10; fig. 12 and col. 10, lines 58-66; and col. 11, lines 23-30); and converting a plurality of the non-intensity modulated optical information signals to intensity modulated signals (fig. 7 and col. 7, line 48 to col. 8, line 9) while the plurality of non-intensity modulated optical information signals are multiplexed in at least a portion of the WDM signal (col. 4, lines 57-67 and col. 10, lines 19-26).

Regarding claim 2, Ohshima discloses the method of Claim 1, further comprising converting the plurality of non-intensity modulated optical information signals to intensity modulated signals using an asymmetric Mach-Zender interferometer (fig. 7 and col. 7, line 48 to col. 8, line 9).

Regarding claim 6, Ohshima discloses the method of Claim 1, wherein the plurality of non-intensity modulated optical information signals comprise a set of partially demultiplexed signals from the WDM signal (fig. 11 and col. 10, lines 11-18).

Regarding claim 10, Ohshima discloses a system for demultiplexing non-intensity modulated wavelength division multiplexed (WDM) signals, comprising: means for receiving a wavelength division multiplexed (WDM) signal having a plurality of non-intensity modulated optical information signals (col. 4, lines 37-43 and lines 57-67; fig. 11 and col. 10, lines 1-10; fig. 12 and col. 10, lines 58-66; and col. 11, lines 23-30); and means for converting a plurality of the nonintensity modulated optical information signals to intensity modulated signals (fig. 7 and col. 7, line 48 to col. 8, line 9) while the plurality of non-intensity modulated optical information

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signals are multiplexed in at least a portion of the WDM signal (col. 4, lines 57-67 and col. 10, lines 19-26).

Regarding claim 11, Ohshima discloses the system of Claim 10, further comprising means for converting the plurality of non-intensity modulated optical information signals to intensity modulated signals using a asymmetric Mach-Zender interferometer (fig. 7 and col. 7, line 48 to col. 8, line 9).

Regarding claim 15, Ohshima discloses the system of Claim 10, wherein the plurality of non-intensity modulated optical information signals comprise a set of partially demultiplexed signals from the WDM signal (fig. 11 and col. 10, lines 11-18).

6. Claims 1, 2, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Warren et al. (US Patent No. 5907421).

Regarding claim 1, Warren et al. disclose a method for demultiplexing non-intensity modulated wavelength division multiplexed (WDM) signals, comprising: receiving a wavelength division multiplexed (WDM) signal (col. 1, lines 6-8) having a plurality of non-intensity modulated optical information signals (col. 2, lines 26-34); and converting a plurality of the non-intensity modulated optical information signals to intensity modulated signals while the plurality of non-intensity modulated optical information signals are multiplexed in at least a portion of the WDM signal (col. 8, lines 6-37).

Regarding claim 2, Warren et al. disclose the method of Claim 1, further comprising converting the plurality of non-intensity modulated optical information signals to intensity modulated signals using a asymmetric Mach-Zender interferometer (fig. 5 and col. 5, lines 50-60).

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Regarding claim 10, Warren et al. disclose a system for demultiplexing non-intensity modulated wavelength division multiplexed (WDM) signals, comprising: means for receiving a wavelength division multiplexed (WDM) signal (col. 1, lines 6-8) having a plurality of non-intensity modulated optical information signals (col. 2, lines 26-34); and means for converting a plurality of the nonintensity modulated optical information signals to intensity modulated signals while the plurality of non-intensity modulated optical information signals are multiplexed in at least a portion of the WDM signal (col. 8, lines 6-37).

Regarding claim 11, Warren et al. disclose the system of Claim 10, further comprising means for converting the plurality of non-intensity modulated optical information signals to intensity modulated signals using a asymmetric Mach-Zender interferometer (fig. 5 and col. 5, lines 50-60).

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima (US Patent No. 5483368).

Regarding claim 19, Ohshima discloses a demultiplexer for an optical receiver, comprising: a format converter operable to receive a wavelength division multiplexed (WDM) signal having a plurality of non-intensity modulated optical information signals (col. 4, lines 37-43 and lines 57-67; fig. 11 and col. 10, lines 1-10; fig. 12 and col. 10, lines 58-66; and col. 11, lines 23-30) and to convert the non-intensity modulated optical information signals to intensity modulated optical information signals while multiplexed in the WDM signal (fig. 7 and col. 7, line

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48 to col. 8, line 9); and a plurality of demultiplexing elements each operable to separate an intensity modulated optical information signal (figs. 11 and 12, elements 112, 121 and 122, and . Ohshima does not disclose that the plurality of demultiplexing elements are each operable to separate a set of intensity modulated signals. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that additional intensity modulated service signals, forming a set of intensity modulated signals, could be transmitted at other wavelengths in the system of Ohshima, the set subsequently demultiplexed in a similar manner that the one 1<sup>st</sup> service signal disclosed by Ohshima is demultiplexed by itself, without affecting the non-intensity modulated signals transmitted at different wavelengths.

Regarding claim 20, Ohshima discloses the demultiplexer of Claim 19, wherein the format converter comprises an asymmetric Mach-Zender interferometer (fig. 7 and col. 7, line 48 to col. 8, line 9).

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima (US Patent No. 5483368) in view of Takato et al. ("Silica-based integrated optic Mach-Zehnder multi/demultiplexer family with channel spacing of 0.01-250 nm"; Takato et al; Selected Areas in Communications, IEEE Journal on, Vol: 8, Issue: 6, Aug. 1990; Pages: 1120-1127).

Regarding claim 21, Ohshima discloses the demultiplexer of Claim 20, but does not disclose that the demultiplex elements comprise Mach-Zender interferometers. Takato et al. disclose demultiplex elements for WDM systems comprising Mach-Zender interferometers (page 1126, Summary section). It would have been obvious to one of ordinary skill in the art at the time of the invention to use Mach-Zehnder interferometer-based demultiplex elements in the system of Ohshima, to provide the benefit of having low loss and low crosstalk demultiplexers, as taught by Takato et al.

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-4, 6-8, 10-13, 15 and 16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of copending Application No. 09/853318 in view of Ohshima (US Patent No. 5483368).

This is a provisional obviousness-type double patenting rejection.

Regarding claim 1, Application No. 09/853318 claims a method for demultiplexing non-intensity modulated wavelength division multiplexed (WDM) signals, comprising: receiving a wavelength division multiplexed (WDM) signal having a plurality of non-intensity modulated optical information signals; and converting a plurality of the non-intensity modulated optical information signals to intensity modulated signals (claim 1). Application No. 09/853318 does not claim converting the non-intensity modulated signals to intensity modulated signals while the non-intensity modulated optical information signals are multiplexed in the WDM signal.

Ohshima discloses receiving a wavelength division multiplexed (WDM) signal having a plurality of non-intensity modulated optical information signals (col. 4, lines 37-43 and lines 57-67; fig. 11 and col. 10, lines 1-10; fig. 12 and col. 10, lines 58-66; and col. 11, lines 23-30); and converting a plurality of the non-intensity modulated optical information signals to intensity modulated



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signals (fig. 7 and col. 7, line 48 to col. 8, line 9) using a Mach-Zehnder interferometer (fig. 7 and col. 7, line 48 to col. 8, line 9) while the plurality of non-intensity modulated optical information signals are multiplexed in at least a portion of the WDM signal (col. 4, lines 57-67 and col. 10, lines 19-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to convert the non-intensity modulated signals to intensity modulated signals while the non-intensity modulated optical information signals are multiplexed in the WDM signal in the system of Application No. 09/853318, to provide the advantage of converting each non-intensity modulated wavelength to an intensity modulated wavelength without requiring demultiplexing of each non-intensity modulated wavelength, as taught by Ohshima.

Regarding claim 2, Application No. 09/853318 in view of Ohshima claims the method of Claim 1, further comprising converting the plurality of non-intensity modulated optical information signals to intensity modulated signals using a asymmetric Mach-Zender interferometer (09/853318: claim 1 and claim 2).

Regarding claims 3 and 4, Application No. 09/853318 in view of Ohshima claims the method of Claim 2, but does not claim that the asymmetric Mach-Zehnder interferometer comprises a free spectral range coinciding with an integer multiple of a channel spacing of the WDM signal. However, Application No. 09/853318 claims wavelength channel spacing comprising a multiple of the symbol rate within 0.4 to 0.6 of an integer (09/853318: claim 1). It would have been obvious to one of ordinary skill in the art at the time of the invention that the Mach-Zehnder used to convert the wavelength channels from non-intensity to intensity modulated signals would have a free spectral range coinciding with the claimed channel spacing, in order to convert the wavelengths as spaced in transmission.

Regarding claim 6, Application No. 09/853318 in view of Ohshima claims the method of Claim 1, wherein the plurality of non-intensity modulated optical information signals comprise a

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set of partially demultiplexed signals from the WDM signal (09/853318: claim 1, and Ohshima: fig. 11 and col. 10, lines 11-18).

Regarding claim 7, Application No. 09/853318 in view of Ohshima claims the method of Claim 1, wherein the WDM signal includes a minimum channel spacing comprising a multiple of a symbol rate of the WDM signal within 0.4 to 0.6 of an integer (09/853318: claim 1).

Regarding claim 8, Application No. 09/853318 in view of Ohshima claims the method of Claim 7, wherein the minimal channel spacing comprising a multiple of the symbol rate within substantially 0.5 of the integer (09/853318: claim 2).

Regarding claim 10, Application No. 09/853318 claims a system for demultiplexing non-intensity modulated wavelength division multiplexed (WDM) signals, comprising: means for receiving a wavelength division multiplexed (WDM) signal having a plurality of non-intensity modulated optical information signals; and means for demultiplexing and converting the non-intensity modulated optical information signals to an intensity modulated signals (claim 9). Application No. 09/853318 does not claim converting the non-intensity modulated signals to intensity modulated signals while the non-intensity modulated optical information signals are multiplexed in the WDM signal. Ohshima discloses receiving a wavelength division multiplexed (WDM) signal having a plurality of non-intensity modulated optical information signals (col. 4, lines 37-43 and lines 57-67; fig. 11 and col. 10, lines 1-10; fig. 12 and col. 10, lines 58-66; and col. 11, lines 23-30); and converting a plurality of the non-intensity modulated optical information signals to intensity modulated signals (fig. 7 and col. 7, line 48 to col. 8, line 9) using a Mach-Zehnder interferometer (fig. 7 and col. 7, line 48 to col. 8, line 9) while the plurality of non-intensity modulated optical information signals are multiplexed in at least a portion of the WDM signal (col. 4, lines 57-67 and col. 10, lines 19-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to convert the non-intensity modulated signals

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to intensity modulated signals while the non-intensity modulated optical information signals are multiplexed in the WDM signal in the system of Application No. 09/853318, to provide the advantage of converting each non-intensity modulated wavelength to an intensity modulated wavelength without requiring demultiplexing of each non-intensity modulated wavelength, as taught by Ohshima.

Regarding claim 11, Application No. 09/853318 in view of Ohshima claims the system of Claim 10, further comprising means for converting the plurality of non-intensity modulated optical information signals to intensity modulated signals using a asymmetric Mach-Zender interferometer (09/853318: claim 12).

Regarding claim 12 and 13, Application No. 09/853318 in view of Ohshima claims the system of Claim 11, but does not claim that the asymmetric Mach-Zehnder interferometer comprises a free spectral range coinciding with an integer multiple of a channel spacing of the WDM signal. However, Application No. 09/853318 claims wavelength channel spacing comprising a multiple of the symbol rate within 0.4 to 0.6 of an integer (09/853318: claims 9 and 10). It would have been obvious to one of ordinary skill in the art at the time of the invention that the Mach-Zehnder used to convert the wavelength channels from non-intensity to intensity modulated signals would have a free spectral range coinciding with the claimed channel spacing, in order to convert the wavelengths as spaced in transmission.

Regarding claim 15, Application No. 09/853318 in view of Ohshima claims the system of Claim 10, wherein the plurality of non-intensity modulated optical information signals comprise a set of partially demultiplexed signals from the WDM signal (09/853318: claim 9, and Ohshima: fig. 11 and col. 10, lines 11-18).

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Regarding claim 16, Application No. 09/853318 in view of Ohshima claims the system of Claim 10, wherein the WDM signal includes a minimum channel spacing comprising a multiple of a symbol rate of the WDM signal within 0.4 to 0.6 of an integer (claims 9 and 10).

***Allowable Subject Matter***

12. Claims 5, 9, 14, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

13. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

  
JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600